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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/639,466	08/13/2003	Yen-Tseng Hsu	HSUY3004/EM	6111
23364 7590 10/17/2007 BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			EXAMINER NGUYEN, TIEN C	
			ART UNIT 4127	PAPER NUMBER
			MAIL DATE 10/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/639,466

Applicant(s)

HSU ET AL.

Examiner

Tien C. Nguyen

Art Unit

4127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. The following is a non-final, first office action on the merits. Claims 1-18 are pending.

Information Disclosure Statement

2. The information disclosure statement filed August 13, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 1, 2, 5, and 11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Claims 1, 2, 5, and 11 recite a system comprising logic per se. If logic is merely computer code, then the method fails to comprise any physical elements and the claims are directed toward a computer program claimed as a computer listing per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. See MPEP 2106 IV.B.1 (a).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 4127

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, 3, 5, 8, 11 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if claims 1, 2, 5, and 11 merely recite computer code and thus the system fails to comprise any physical elements, which is inconsistent with the preamble which claims a system.

Further in claim 1, the terms " $MAP_{iD(iD)}$ and $MAV_{iD(iD)}$ " in line 8 are not defined within the scope of the claim.

Further in claim 2, the terms " $MAP_{iD(iD)}$ and $MAV_{iD(iD)}$ " in line 32 are not defined within the scope of the claim.

Further in claim 5, the terms " MAP_{72D} or MAP_{6M} or MAP_{12M} " in line 24 are not defined within the scope of the claim.

Further in claim 5, the term " $t_D \in T$ " in line 26 is not clearly defined.

Further in claim 8, the terms " MAP_{6D} or MAP_{12D} or MAP_{24D} " in line 1 are not clearly defined.

Further in claim 11, the terms " MAP_{72D} or MAP_{6M} or MAP_{12M} " in line 10 are not clearly defined.

Further in claim 14, the terms " MAP_{3D} MAP_{6D} or MAP_{12D} or MAP_{24D} " in line 22 are not clearly defined.

The Examiner finds that because particular claims are rejected as being indefinite under 35 U.S.C. §112 2nd paragraph, it is impossible to properly construe claim scope at this time. See *Honeywell International Inc. v. ITC*, 68 USPQ2d 1023, 1030 (Fed. Cir. 2003) ("Because the claims are indefinite, the claims, by definition,

Art Unit: 4127

cannot be construed."). However, in accordance with MPEP §2173.06 and the USPTO's policy of trying to advance prosecution by providing art rejections even though these claims are indefinite, the claims are construed and the art is applied as much as practically possible.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Churquina (2004/0225592) in view of Phillips et al. (U.S. 6,792,399).**

As per claim 1, Churquina teaches a computer-implemented method for monitoring stock market information with investment risk, comprising steps of:

finding a first data set comprising a top period T_T and a corresponding top volume in the historical data $MAP_{iD(iD)}$ and $MAV_{iD(iD)}$ of stock market information (see paragraphs [0045] and [0087]; via obtaining first population subset by time including all volume per price bracket set (VPPBs) corresponding to the last 10 time intervals in the historical data of instrument price);

finding a second data set comprising a bottom period T_B and a corresponding bottom volume in the historical data $MAP_{iD(iD)}$ and $MAV_{iD(iD)}$ of stock market information (see paragraphs [0045] and [0087]; via obtaining second population subset by time including all volume per price bracket set (VPPBs) corresponding to the last 20 time intervals in the historical data of instrument price);

Art Unit: 4127

determining whether current volume falls within a volume range defined by said gray coefficient $\hat{g} = [\hat{a}, \hat{b}]$ when bottom period T_B is confirmed on current $MAP_{iD(iD)}$ (see paragraphs [0008] and [0038]; via the current volume is likely the current price. The Liquidity Data Bank Volume Analysis[®] compares the total volume of each period with respect of the price range of a single time period); and

submitting an indication to indicate an appearance of a bear bottom in stock market if current volume fell within volume range (see paragraphs [0038], [0109] and [0115]; via submitting a trading indicator to evaluate the downtrending of trending markets within the selected market instrument price. Bear bottom refer as the downtrending of markets. Current volume is likely the current price).

However, Churquina fails to explicitly disclose a step of organizing a training event set E from first data set and second data set, each training event E in said training event set E comprising a training pair response to a price ratio of said top period T_T to adjacent bottom period T_B ;

training a neural network to learn training event set E in a supervised learning manner to obtain a gray coefficient $\hat{g} = [\hat{a}, \hat{b}]$;

Phillips et al. discloses a step for organizing a training event set E from first data and second data set, each training event E in training event set E comprising a training pair response to a price ratio of top period T_T to adjacent bottom period T_B ; (see column 1, lines 9-10 and 65-66; column 2, lines 1-3; column 4, lines 33-36; and column 55, lines 25-27; via prediction event can be organized in a large database of information to provide combination forecasts and other statistical analyses. Computerized

Art Unit: 4127

databases techniques includes in "neural networks". Neural networks can be trained and used in creating the forecasts. Also, the statistic Intraday Expectational Uncertainty Measure (EUM), the ratio of the EUM of the most recent thousand forecasts to the EUM for the current daily overall, can be used to measure the value of the forecast. The forecasting addresses the values of variable, such as the price of a share of stock);

From this teaching of Phillips et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to define a useful neural network training technique of Churquina to include the organized of prediction event training as taught by Phillips in order to provide a combined forecasting and predicted valuable price values of stock market as well as being highly useful for marketing purposes.

Phillips et al. also discloses a step for training a neural network to learn training event set E in a supervised learning manner to obtain a gray coefficient $\hat{g} = [\hat{a}, b]$ (see column 55, lines 25-27; via the neural network can be trained using the repeated forecast horizons as repeated iterations for training purposes);

From this teaching of Phillips et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to define a useful step to train the neural network of Churquina to include in a supervised learning manner as taught by Phillips in order to respond to newly perceived market relations quickly than in traditional models.

As per claim 2, Churquina teaches a computer-implemented method for monitoring stock market information with investment risk, comprising the steps of:

Art Unit: 4127

finding a first data set comprising a top period T_T and a corresponding top volume in the historical data $MAP_{iD(tD)}$ and $MAV_{iD(tD)}$ of stock market information (see paragraphs [0045] and [0087]; via obtaining first population subset by time including all volume per price bracket set (VPPBs) corresponding to the last 10 time intervals in the historical data of instrument price);

finding a second data set comprising a bottom period T_B and a corresponding bottom volume in the historical data $MAP_{iD(tD)}$ and $MAV_{iD(tD)}$ of stock market information (see paragraphs [0045] and [0087]; via obtaining second population subset by time including all volume per price bracket set (VPPBs) corresponding to the last 20 time intervals in the historical data of instrument price);

determining whether current volume falls within a volume range defined by said gray coefficient $\hat{g} = [\hat{a}, \hat{b}]$ when bottom period T_B is confirmed on current $MAP_{iD(tD)}$ (see paragraphs [0008] and [0038]; via the current volume is likely the current price. The Liquidity Data Bank Volume Analysis[®] compares the total volume of each period with respect of the price range of a single time period); and

submitting an indication to indicate an appearance of a bull top in said stock market if current volume fell within volume range (see paragraphs [0038], [0109] and [0115]; via submitting a trading indicator to evaluate the uptrending of trending markets within the selected market instrument price. Bull top refer as the uptrending of markets. Current volume is likely the current price).

Art Unit: 4127

However, Churquina fails to explicitly disclose a step of organizing a training event set E from first data set and second data set, each training event E in training event set E comprising a training pair response to a price ratio of bottom period T_B to adjacent top period T_T ;

training a neural network to learn training event set E in a supervised learning manner to obtain a gray coefficient $\hat{g} = [\hat{a}, \hat{b}]$;

Phillips et al. discloses a step for organizing a training event set E from first data and second data set, each training event E in training event set E comprising a training pair response to a price ratio of bottom period T_B to adjacent top period T_T (see column 1, lines 9-10 and 65-66; column 2, lines 1-3; column 4, lines 33-36; and column 55, lines 25-27; via prediction event can be organized in a large database of information to provide combination forecasts and other statistical analyses. Computerized databases techniques includes in "neural networks". Neural networks can be trained and used in creating the forecasts. Also, the statistic Intraday Expectational Uncertainty Measure (EUM), the ratio of the EUM of the most recent thousand forecasts to the EUM for the current daily overall, can be used to measure the value of the forecast. The forecasting addresses the values of variable, such as the price of a share of stock);

From this teaching of Phillips et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to define a useful neural network training technique of Churquina to include the organized of prediction event training as taught by Phillips in order to provide a combined forecasting and predicted valuable price values of stock market as well as being highly useful for marketing purposes.

Art Unit: 4127

Phillips also discloses a step for training a neural network to learn training event set E in a supervised learning manner to obtain a gray coefficient $\hat{g} = [\hat{a}, \hat{b}]$ (see column 55, lines 25-27; via the neural network can be trained using the repeated forecast horizons as repeated iterations for training purposes);

From this teaching of Phillips et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to define a useful step to train the neural network of Churquina to include in a supervised learning manner as taught by Phillips in order to respond to newly perceived market relations quickly than in traditional models.

As per claim 3, Churquina teaches a method wherein $MAP_{iD(iD)}$ is *i*-day moving average trend of daily price $P_{D(iD)}$ (see paragraphs [0008] and [0039]; via each transaction price is collected in a finite interval 24-hour day (daily). Moving averages identifies price trend changes at the earliest possible time).

As per claim 4, Churquina teaches a method wherein $MAV_{iD(iD)}$ is *i*-day moving average trend of daily volume $V_{D(iD)}$ (see paragraphs [0038]; via current volume is likely the current price trend. So, moving averages can identify volume trend changes as well).

As per claim 5, Churquina teaches a method wherein a step of finding first data set comprising top period T_T and said corresponding top volume includes:

Art Unit: 4127

a) based on the trend of i day moving average $MAP_{iD(tD)}$, getting a time frame T on a time axis t_D , wherein MAP_{72D} or MAP_{6M} or MAP_{12M} are convex curves and $MAP_{iD(tD)}$, comprises at least a local maximum Z_m and a local minimum Z_n in $t_D \in T$ (see paragraphs [0077], [0078] and [0106]; via trending markets are market curves and getting a time frame T on the horizontal range. Local maximum Z_m and local minimum Z_n refer to predetermined minimum and predetermined maximum. Time intervals exceed a predetermined minimum and maximum according to trading volume and price);

b) determining a value α to obtain top period T_T , such

$$\{ MAP_{iD} | MAP_{iD(tD)} \geq \alpha, t_D \in T_T \text{ and } MAP_{iD(tD)} < \alpha, t_D \notin T_T \}$$

(see paragraph [0019]; a value α refers to a score which is obtained for each selected volume per price bracket (VPPB) corresponding to evaluation time interval)

c) according to top period T_T , obtaining corresponding top volume from $MAV_{iD(tD)}$ (see paragraph [0010]; via aggregated volume is occurred and obtained according each period of time intervals).

As per claim 6, Churquina teaches a method wherein time frame T is selected from 7 months to 12 months (see paragraph [0062]; via time interval is selected through an appropriate user interface).

Art Unit: 4127

As per claim 7, Churquina teaches a method wherein time frame T is perfectly selected from 30 weeks to 46 weeks months (see paragraph [0062]; via time interval is selected through an appropriate user interface).

As per claim 8, Churquina teaches a method wherein said i day moving average $MAP_{iD(iD)}$ is perfectly selected a group of MAP_{6D} or MAP_{12D} or MAP_{24D} (see paragraphs [0006] and [0101]; via a maximum volume price belongs one of the group of price brackets and is selected under moving average).

As per claim 9, Churquina teaches a method wherein top period T_T is perfectly a period from 7 days to 21 days (see paragraph [0010]; via each period is a set of discrete time intervals).

As per claim 10, Churquina teaches a method wherein value α is one of local minimum Z_n in step a) (see paragraph [0098]; via value α is a score that is obtained in one of the predetermined minimum criteria).

As per claim 11, Churquina teaches a method wherein a step of finding second data set comprising bottom period T_B and corresponding bottom volume includes:

a) based on the trend of i day moving average $MAP_{iD(iD)}$, getting a time frame T on a time axis t_D , wherein MAP_{72D} or MAP_{6M} or MAP_{12M} are concave curves and $MAP_{iD(iD)}$ comprises at least a local maximum Z_m and a local minimum Z_n in (see paragraphs [0077], [0078] and [0106]; via trending markets are market curves and getting a time frame T on the horizontal range. Local maximum Z_m and local minimum Z_n refer to predetermined minimum and predetermined maximum. Time intervals exceed a predetermined minimum and maximum according to trading volume and price);

b) determining a value β to obtain bottom period T_B , such

Art Unit: 4127

$$\{ \text{MAP}_{iD} | \text{MAP}_{iD(tD)} \leq \beta, t_D \in T_B \text{ and } \text{MAP}_{iD(tD)} < \beta, t_D \notin T_B \}$$

(see paragraph [0019]; a value β refers to a score which is obtained for each selected volume per price bracket (VPPB) corresponding to evaluation time interval).

c) according to bottom period T_B , obtaining corresponding bottom volume from $\text{MAV}_{iD(tD)}$ (see paragraph [0010]; via aggregated volume is occurred and obtained according each period of time intervals).

As per claim 12, Churquina teaches a method wherein time frame T is selected from 7 months to 12 months (see paragraph [0062]; via time interval is selected through an appropriate user interface).

As per claim 13, Churquina teaches a method wherein time frame T is perfectly selected from 30 weeks to 46 weeks months (see paragraph [0062]; via time interval is selected through an appropriate user interface).

As per claim 14, Churquina teaches a method wherein said i day moving average $\text{MAP}_{iD(tD)}$ is perfectly selected a group of MAP_{3D} MAP_{6D} or MAP_{12D} or MAP_{24D} (see paragraphs [0006] and [0101]; via a maximum volume price belongs one of the group of price brackets and is selected under moving average).

As per claim 15, Churquina teaches a method wherein top period T_T is perfectly a period from 7 days to 21 days (see paragraph [0010]; via each period is a set of discrete time intervals).

Art Unit: 4127

As per claim 16, Churquina teaches a method wherein value β is one of local maximum Z_m in step a) (see paragraph [0098]; via value β is a score that is obtained in one of the predetermined maximum criteria).

As per claim 17, Churquina teaches a method wherein an indication represents current price fell into next bottom period T_B (see paragraph [0054]; via a trading indicator represents a volume per price bracket (VPPB) corresponding to the time interval).

As per claim 18, Churquina teaches a method wherein an indication represents current price fell into next top period T_T (see paragraph [0054]; via a trading indicator represents a volume per price bracket (VPPB) corresponding to the time interval).

37 CFR § 1.105 Requirement for Information

9. Applicants and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

This information is required to complete the record so that an analysis can be made under 35 U.S.C. 102 and 103 may be ascertained. Thus, the following information is requested:

- Information directed to current practice of any ranking algorithm or ranking formula that were determined prior to the filing date of the present application or related applications.
- The existence of any particularly relevant commercial database, any user manuals, automation guides, sales presentation materials, or product

Art Unit: 4127

descriptions known to any of the inventors that could be searched for the formulas claimed or offered for sale or sold more than one year prior to the filing date of the present application or related applications.

The fee and certification requirements of 37 C.F.R. § 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 C.F.R. § 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 C.F.R. § 1.105 are subject to the fee and certification requirements of 37 C.F.R. § 1.97.

The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete response to the requirement for that item.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 4127

Blanchard et al. (U.S. 7,181,423) discloses a method and system for stock options market management.

Boyd et al. (U.S. 6,963,854) discloses a method and system for target pricing system.

Li et al. (U.S. 7,043,449) discloses a method and system for charting financial market activities.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien C. Nguyen whose telephone number is 571-270-5108. The examiner can normally be reached on Monday-Thursday (8:00am-4:00pm EST).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynda Jasmin can be reached on 571-270-3033. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 4127

TN

10/3/2007

 10/15/07
LYNDA JASMIN
SUPERVISORY PATENT EXAMINER